

### **REMARKS**

Claims 146-171, 173, and 175-209 are pending in the above-identified application. Claims 146-170 and 177-205 have been withdrawn, and claims 171, 173, 175, 176, and 206-209 were rejected. With this Amendment, claims 171 and 206 have been amended, and claims 210-219 have been added. Accordingly, claims 171, 173, 175, 176, and 206-219 are at issue.

#### **I. 35 U.S.C. § 112 Rejection of Claims**

Claims 206-209 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner states that there is no support in the embodiment of figure 6 for a cap layer having a band gap always larger than that of the p-type clad layer, as recited in claim 206. Applicants respectfully submit, however, that figure 7 discloses this limitation. Figure 7 is a schematic diagram showing an energy band structure of the GaN compound semiconductor laser according to the fifth embodiment, i.e., the embodiment depicted in figure 6. Accordingly, Applicants respectfully request withdrawal of this rejection.

#### **II. 35 U.S.C. § 103 Obviousness Rejection of Claims**

Claims 171, 173, 175-176 and 206-209 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schetzina (U.S. Patent No. 5,670,798) in view of Ibbetson et al. (U.S. Patent No. 6,515,313). Applicants respectfully traverse this rejection.

Claim 171 has been amended to specify that the p-type clad layer comprises a superlattice clad layer. Neither Schetzina nor Ibbetson et al. discloses or suggests this limitation. Accordingly, claim 171, and claims 173, 175, 176 and 210 that depend from claim 171, are allowable over Schetzina and Ibbetson et al.

Newly added claim 211 specifies that the p-type clad layer is not continuously graded. Newly added claim 215 specifies that the p-type clad layer comprises one or more discrete electron energy levels. No new matter has been added with these claims because figure 7 discloses this limitation. Because neither Schetzina nor Ibbetson et al. discloses or suggests these limitations, claims 211 and 215, and claims 212-214 and 216-219 that depend from these claims, respectfully, are allowable over Schetzina and Ibbetson et al.

The Examiner states that in figure 4A of Schetzina, the p-type clad [sic] layer always has an *average* band gap which is larger than that of the p-type clad layer. Claim 206, however, specifies that the cap layer has a band gap that is always larger than that of the p-type clad layer, not an *average* band gap which is larger than that of the p-type clad layer. Accordingly, Schetzina neither discloses nor suggests that the cap layer has a band gap that is always larger than that of the p-type clad layer, as required by claim 206. Ibbetson et al. also does not disclose or suggest this limitation. Accordingly, claim 206, and claims 207-209 that depend from claim 206, are allowable over Schetzina and Ibbetson et al.


For all of the reasons set forth above, Applicants respectfully submit that claims 171, 173, 175, 176, and 206-219 are allowable over Schetzina and Ibbetson et al., and respectfully request withdrawal of this rejection.

**III. Conclusion**

In view of the above amendments and remarks, Applicants submit that all claims are clearly allowable over the cited prior art, and respectfully request early and favorable notification to that effect.

Respectfully submitted,

Dated: January 16, 2007

By:   
\_\_\_\_\_  
Marina N. Saito  
Registration No. 42,121  
SONNENSCHN NATH & ROSENTHAL LLP  
P.O. Box 061080  
Wacker Drive Station, Sears Tower  
Chicago, Illinois 60606-1080  
(312) 876-8000

12147590